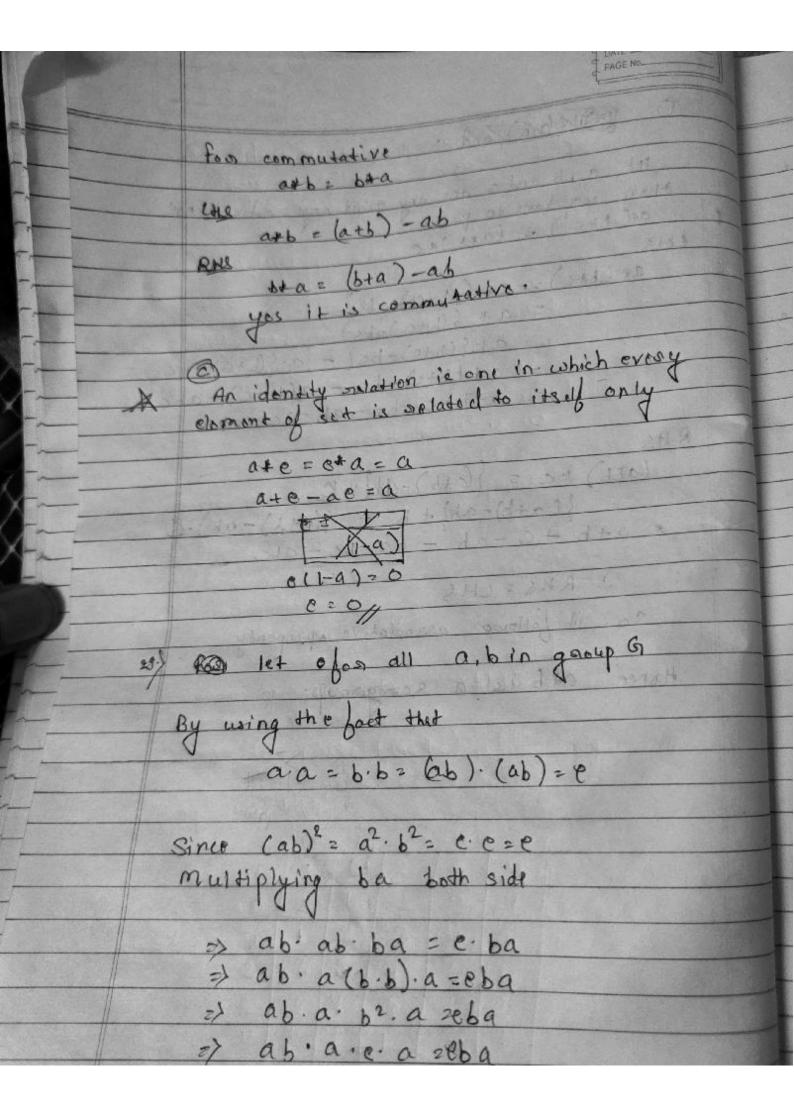


16. 1 The set of 2002 matrix with seal enteries is have not invenes when determinate of matrix become 28.) (a.) 344 · a+6 = (a+5) - ab = (3+4)-3.4
= 7-122-5 2+(-5): -3-(-10) 7 * 1/2 = (7+1) - 7/2 2 15 - 7/2 2 8/2 = 4 (b.) For samignoup 1 Gxb-+6 1424-1401:4 axb = (ath) - ab arb is ment (sum of two out is seef sadium) ab is national (parduet of two sutional is sational) then (1+b) - ab is also national .. Fis undoor grup x: Gx Gr > G

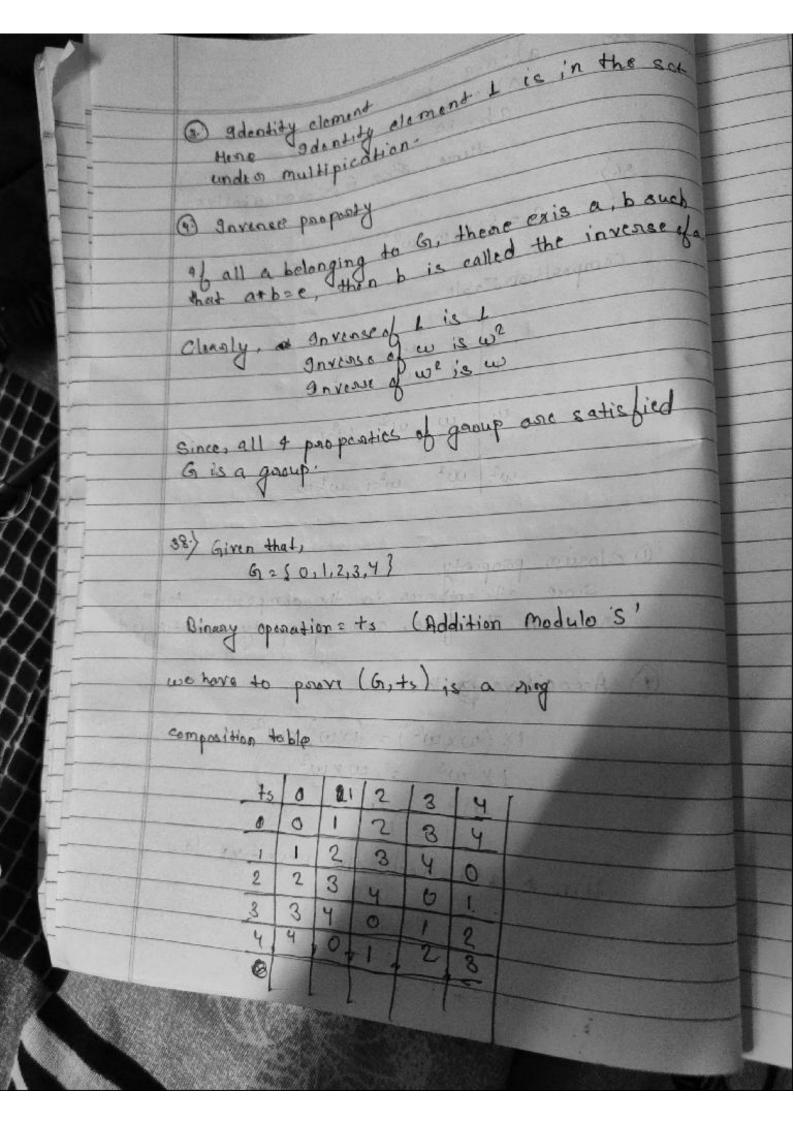
(D) 100 14 616) Part). 10t a, b and c are any ashiderary stational noo then we have to prove and stc) = (att) + c a+ (b+c) = a+ (b+c) - bc) = a + { (b+c)-bc) = a+ {(b+c)-bc} - a.{(b+6)-bc = a+(b+c)-bc-a(b+c)-abc = atbtc-bc-ab-ac-abc RHS (atb) *c = (a+b)-ab/ + & 1(a+b)-ab]+b - {(a+b)-ab).8 = a+b+c-ab'-ac-bc-abc : RHS = LHS so, it bollows associative oproperty Honce atbis a semigoroup.



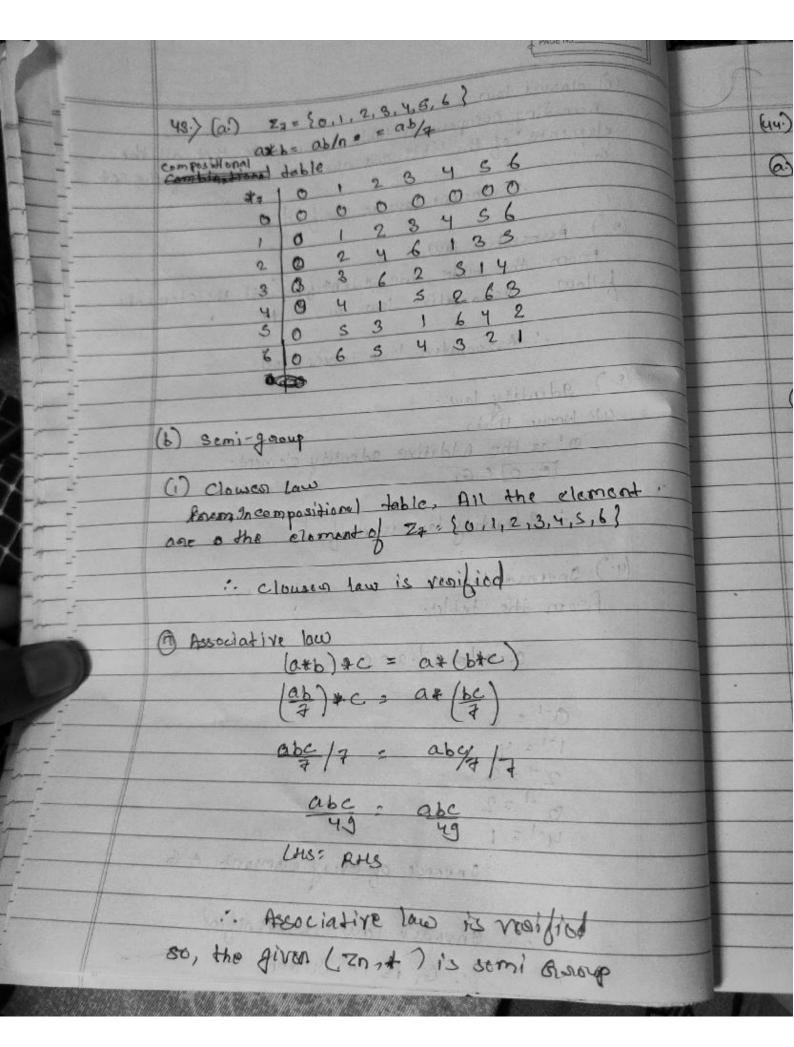
(3) ab.a.a = ba ab.e = ba ab = 6a tence. By & G is commutative $G = \{1, \omega, \omega^2\}$ Composition Table ω ω ω^2 ω^3 w2 w2 w3:1 w1=w O closus property

Since all enteries in the composition table

are in A. Therefore. Closus property is satisfied (2) Associative po law: 1x (wxw2) = (xw)xw2 $1 \times \omega^{3} = \omega \times \omega^{2}$ 1 = 1then & statisfied the associtive law



(1) closual low According composition table, we observe that all the claments of the table one also the cloments of the est .- closure law is resified (2.) Associative law from the table, we adentify, All the elements follow Associative law wiret to .: Associative law is renified (8.) adentity law: -'o' is the Additive adentity element. P=0 € G :- 9 dentity law is vesified (4-) Invinse law from the table. a. a = a = a = e 1-124 21=3 0 -1 = 2 4-1 = 1 suresce of every cloment & G .. Invosse law is venified .. On is in Orroup.



(44) Cn= 11,2,3,4,5,6?

@ Table:

		the same of the same			
Xa	1	2	3	4	36
1	1	2.	3	4	86
2	2	4	6	1	35
3	3	6	2	5	14
4	4	1	5	2	63
3	5	3	1	6	42
6	, 6	5	4	3	21

from above table